

# CHM 4130, INSTRUMENTAL ANALYSIS

## Fall, 2015, M,W,F, 2<sup>nd</sup> Period

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**Objectives:** CHM 4130 is a survey of the broad range of instruments available to the chemist, including internal function, applications, and limitations. Students may obtain hands-on experience with many of the instruments in CHM 4130L, which may be taken simultaneously with or after completion of CHM 4130.

**Text:** Harris, D.C. *Quantitative Chemical Analysis*, 8<sup>th</sup>/9<sup>th</sup> Ed; W.H. Freeman: New York, 2010/2015.

**Grading:** There will be 7 in-class tests on the days designated on the schedule. The lowest grade of tests 1-6 will be dropped. The grade for test 7 cannot be dropped. A missed test will be considered as the lowest. There will be three problem sets containing a selection of practice problems (not turned in) plus a few problems to be submitted on the designated dates. The points will be distributed as follows:

Tests (Best 6 of 7 @ 75 pts)	450
Written Assignments (3 @ 25 pts)	<u>75</u>
<b>Total</b>	<b>525</b>

**Grading Scale:** Grades will be assigned according to the following point totals:

>475, A	445-474, A-	420-444, B+	390-419, B	370-389, B-
340-369, C+	315-339, C	290-314, C-	260-289, D+	240-259, D

Note: Chemistry majors earning grades below C (i.e., C-, D+, D, or E) must repeat the course to earn credit toward the degree.

**Attendance:** Attendance is required. Students are allowed one unexcused absence. Each additional unexcused absence will result in a 5 point deduction.

**Assignments:** Solutions to homework assignments are expected to be individual efforts. Students may obtain help from Dr. Williams, the TA, or any library/web reference materials. Please write on one side only (pencil is OK).

**Students with Disabilities:** Appropriate accommodations will be provided, according to the policy at [www.chem.ufl.edu/~itl/disabilities.html](http://www.chem.ufl.edu/~itl/disabilities.html).

**Academic Honesty:** Students are expected to obey the University of Florida Honor Code, detailed at [www.chem.ufl.edu/~itl/honor.html](http://www.chem.ufl.edu/~itl/honor.html). Violations will be reported to the Office of Student Judicial Affairs.

**Lecture Schedule**  
**Book Chapters are for Harris 9<sup>th</sup> Ed with 8<sup>th</sup> Ed in parentheses.**

<b>Week</b>	<b>Topic(s)</b>	<b>Chapter(s)</b>	<b>Special Dates</b>
8/24,26,28	Fundamental Concepts; Quantitation	5 (5)	
8/31;9/2,4	Basic Electronics	Notes provided	Fri, 9/4, Test 1
9/7,9,11	Signal/Noise; Intro Chromatographic Methods	20.6 (19.6); 23 (22)	
9/14,16,18	Chromatography; GC	23,24 (22,23)	Fri, 9/18, Test 2
9/21,23,25	GC; HPLC	24,25 (23,24)	
9/28,30;10/2	HPLC	25,26 (24,25)	Fri, 10/2 Problem Set 1 due
10/5,7,9	CE; Intro Optical Spectroscopy	26,18 (25,17)	Fri. 10/9, Test 3
10/12,14,16	Optical Spectroscopy	20 (19)	
10/19,21,23	Atomic Spectroscopy	21 (20)	Fri, 10/23, Test 4
10/26,28,30	Fluorescence	18 (17)	
11/2,4,6	IR; Raman	20 (19)	Wed, 11/4 Problem Set 2 due
11/9, <del>11</del> ,13	Electrochemistry	14 (13)	Fri, 11/13, Test 5
11/16,18,20	Potentiometry; Voltammetry	15,17 (14,16)	
11/23, <del>25,27</del>	Test 6 only		Mon, 11/23, Test 6
11/30; 12/2,4	Mass Spectrometry	22,21 (21,20)	Fri, 12/4 Problem Set 3 due
12/7,9, <del>11</del>	Mass Spectrometry	22 (21)	Wed, 12/9, Test 7